REMARKS

This Application has been carefully reviewed in light of the Office Action mailed September 21, 2004. At the time of the Office Action, Claims 117-133 were pending in this Application, of which Claims 117-121, 123, 125-127, 129, and 131-133 were rejected and Claims 122, 124, 128, and 130 were objected to. In order to advance prosecution of this case, Claims 117, 121, 126, 129 and 133 have been amended. Claims 122, 123, 128, and 132 have been cancelled without prejudice or disclaimer for the sole purpose of facilitating prompt issuance of the remaining claims. Applicant reserves the right to prosecute the original claims and matter in a separate application. Applicant respectfully request reconsideration and favorable action in this case.

Crowley (US Patent 6,038,060):

Claims 117-120 were rejected under 35 U.S.C. 102(e) as being anticipated by Crowley (US Patent 6,038,060). The Examiner states:

> "With regards to claim 117-119 Crowley disclose at least on vertically oriented nanotube in a controlled foraminous (template) silicon based substrate (see column 5 lines 53-65). With regards to claim 120 the examiner notes that Application/Control Number: 09/779,374 since the carbon nanotube is outside of the substrate (figure 3) that this would constitute the nanotube being partially electrically isolated from the substrate (since air is a good insulator)."

Crowley discloses plurality of carbon nanotubes that protrude outside the substrate in air, "Referring to FIG. 3, a prepared substrate 11 with embedded nanoparticles 19 may be supplied with acetylene-fed carbon nanotubes 21 extending from depressions 13 or apertures 15." **(Col. 6, lines 33-36)** and **Figures 3 and 4**. Crowley fails to disclose, teach, or suggest at least one carbon nanotube that is embedded in a silicon-based substrate without protruding beyond the said substrate in air. Therefore, the Applicant amends claim 117 for the sole purpose of facilitating prompt issuance of the claims so as to include the protrusion limitation, "A device comprising: at least one vertically oriented carbon nanotube embedded in a silicon-

based substrate without protruding beyond the said substrate in air." **(Amended Claim 117)**

Therefore, the Applicant respectfully requests the independent Claim 117, as amended, be allowed. Claims 118-120 are dependent claims depending from independent Claim 117. Therefore, the Applicant respectfully requests the dependent Claims 118-120 also be allowed.

Crowley (US Patent 6,038,060) and Choi et al. (US Patent 6,504,292):

Claim 121 was rejected under 35 U.S.C. 102(e) as being anticipated by Crowley (US Patent 6,038,060). Claims 121, 123, and 125 were rejected under 35 U.S.C. 102(e) as being anticipated by Choi et al. (US Patent 6,504,292). As stated by the Examiner, Claim 122, which was dependent on Claim 121, was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Applicant amends Claim 121 for the sole purpose of facilitating prompt issuance of the claims so as to include the limitations of the objected Claim 122, as indicated by the Examiner to be allowable if written in independent form. Accordingly the Applicant requests allowance of Claim 121 as amended.

Dependent Claim 122 was incorporated into Claim 121 and therefore has been cancelled.

Claim 123 has been cancelled without prejudice or disclaimer.

Claims 124 and 125 are dependent claims, depending on independent Claim 121 as amended. Therefore, the Applicant respectfully request the dependent Claims 123 and 125 also be allowed.

Choi et al. (US Patent 6,504,292):

Claims 126 and 127 were rejected under 35 U.S.C. 102(e) as being anticipated by Choi et al. (US Patent 6,504,292). As stated by the Examiner, Claim 128, which was dependent on Claim 126, was objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Applicant amends Claim 126 for the sole purpose of facilitating prompt issuance of the claims so as to include the limitations of the objected Claim 128, as indicated by the Examiner to be allowable if written in independent form. Accordingly the Applicant requests allowance of Claim 126 as amended.

Claim 127 is dependent claim, depending on independent Claim 126 as amended. Therefore, the Applicant respectfully request the dependent Claim 127 also be allowed.

Dependent Claim 128 was incorporated into Claim 126 and therefore has been cancelled.

Martel et al. (Single and multiwall carbon nanotube field effect transistors):

Claim 129 and 131 were rejected under 35 U.S.C. 102(e) as being anticipated by Martel et al. (Single and multiwall carbon nanotube field effect transistors). The Examiner states:

> "Martel et al. disclose a first electronic device, a second electronic device, and at least one carbon nanotube, wherein the said carbon nanotube is electrically coupled to said first electronic device and said second electronic device and the nanotube is horizontal (see figure 1)."

Martel et al. disclose a carbon nanotube that connects to two electrodes to forms a device, "A schematic cross section of a NT device is shown in Fig. 1. They consist of either an individual SWNT or MWNT bridging two electrodes deposited on a 140 nm thick gate oxide film on a doped Si wafer, which is used as a back gate. The 30 nm thick Au electrodes were defined using electron beam lithography." **(Pg. 2447, col. 1, lines 33-38)** and **Figure 1**. Accordingly, Martel et al. fails to disclose, teach, or suggest at least one carbon nanotube that connects two logic devices. Therefore, the Applicant amends claim 129 for the sole purpose of facilitating prompt issuance of the claims so as to include the limitation of connecting two logic devices, "A device comprising: a first electronic device having at least one logic device; a second

electronic device having at least one logic device; and at least one carbon nanotube, wherein the said carbon nanotube is electrically coupled to said first electronic device and said second electronic device." **(Amended Claim 129)**

Claims 130 and 131 are dependent claims, depending on independent Claim 129 as amended. Therefore, the Applicant respectfully request the dependent Claims 130 and 131 also be allowed.

Menon et al. (Fullerene derived molecular electronic device):

Claims 132 and 133 were rejected under 35 U.S.C. 102(e) as being anticipated by Menon et al. (Fullerene derived molecular electronic device). The Examiner states:

> "With regards to claim 132, Menon disclose at least one vertically oriented carbon nanotube', and at least one horizontally oriented carbon nanotube, wherein the said horizontally oriented carbon nanotube is electrically coupled to the said vertically oriented carbon nanotube (see figure 1). With regards to claim 133, Menon disclose a first carbon nanotube, a second carbon nanotube, and wherein said first carbon nanotube crosses path with said second carbon nanotube at a point such that said first carbon nanotube and said second carbon nanotube are electrically coupled (see figure 2)."

Claim 132 has been cancelled without prejudice or disclaimer.

Menon et al. disclose plurality of carbon nanotube branches that are connected to each other via "Y-junction" to form a single continuous nanotube with three branches (arms), "All three arms of the structure have zig-zag configurations, but the (9,0) arms are metallic, while the (8,0) arm is semi-conducting. Thus this structure forms a nanoscale metal-semiconductor-metal tunnel junction." **(Pg. A53, col. 1, lines 13-178)** and **Figure 2**. Accordingly, Menon et al. fails to disclose, teach, or suggest two separate carbon nanotubes that cross each other and are electrically coupled. Therefore, the Applicant respectfully requests that Claim 133 be allowed since it is different then the Menon et al. disclosure.

New Claims:

Claim 134 was added to include the amended Claim 121 with the limitation that the nanotube is protruding from the substrate. The Applicant respectfully requests that Claim 134 be allowed since it includes the limitations of the amended Claim 121.

As stated by the Examiner, Claim 124, which was dependent on Claim 121, was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicant has added a new claim 135 that amends Claim 121 so as to include the limitations of the objected Claim 124, as indicated by the Examiner to be allowable if written in independent form. Accordingly the Applicant requests allowance of Claim 135.

Claim 136 is dependent claim, depending on independent Claim 135. Therefore, the Applicant respectfully request the dependent Claim 136 also be allowed.

Applicant believes the application is now in condition for allowance and issuance is respectfully requested. Should the Examiner wish to discuss this matter further, please do not hesitate to contact me.

Respectfully submitted,

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